

E 100 105 110 115 120 125 130 135 140 145 150 155 160 165 170 E

N 35

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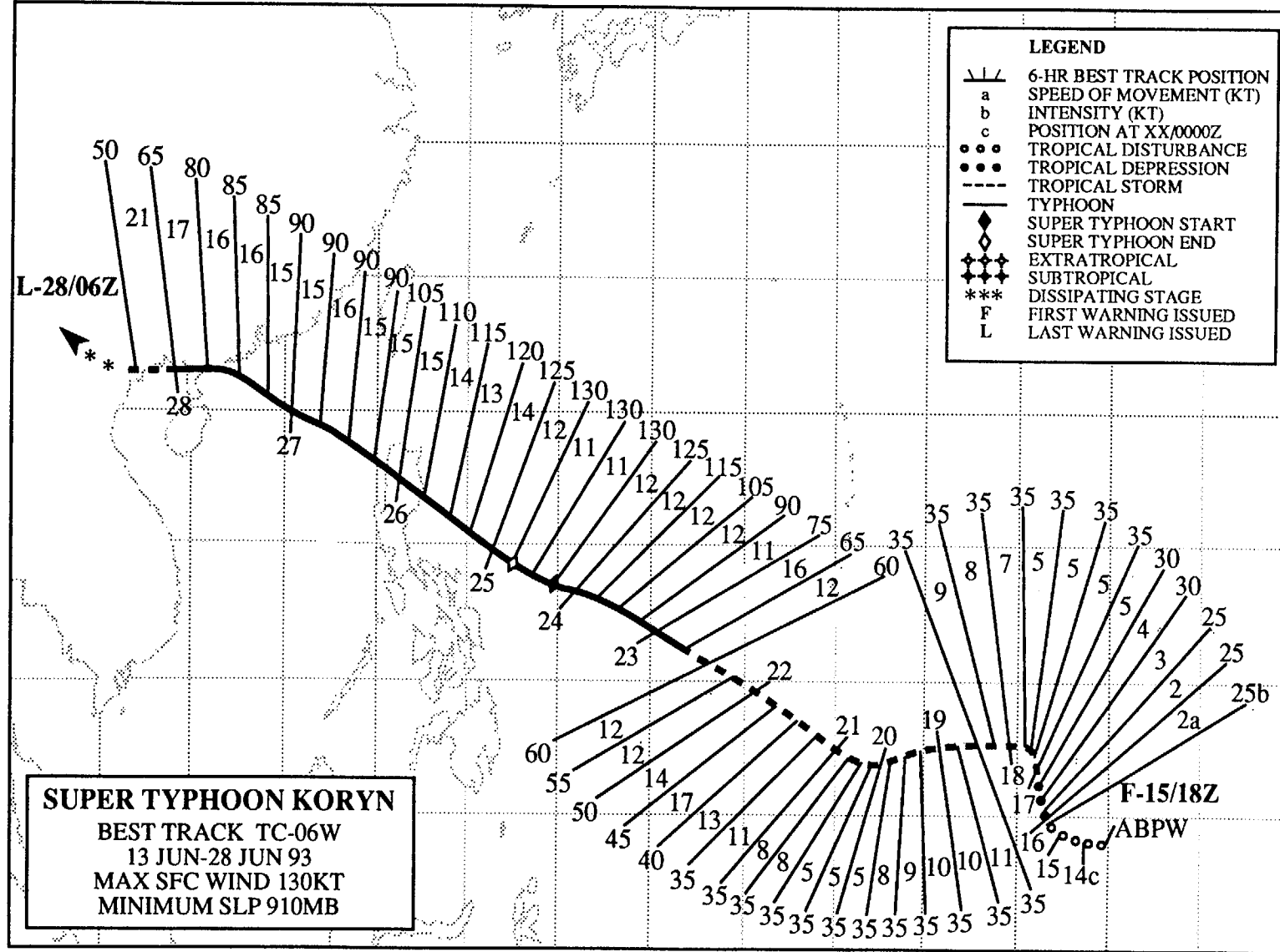
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EQ



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SUPER TYPHOON KORYN (06W)

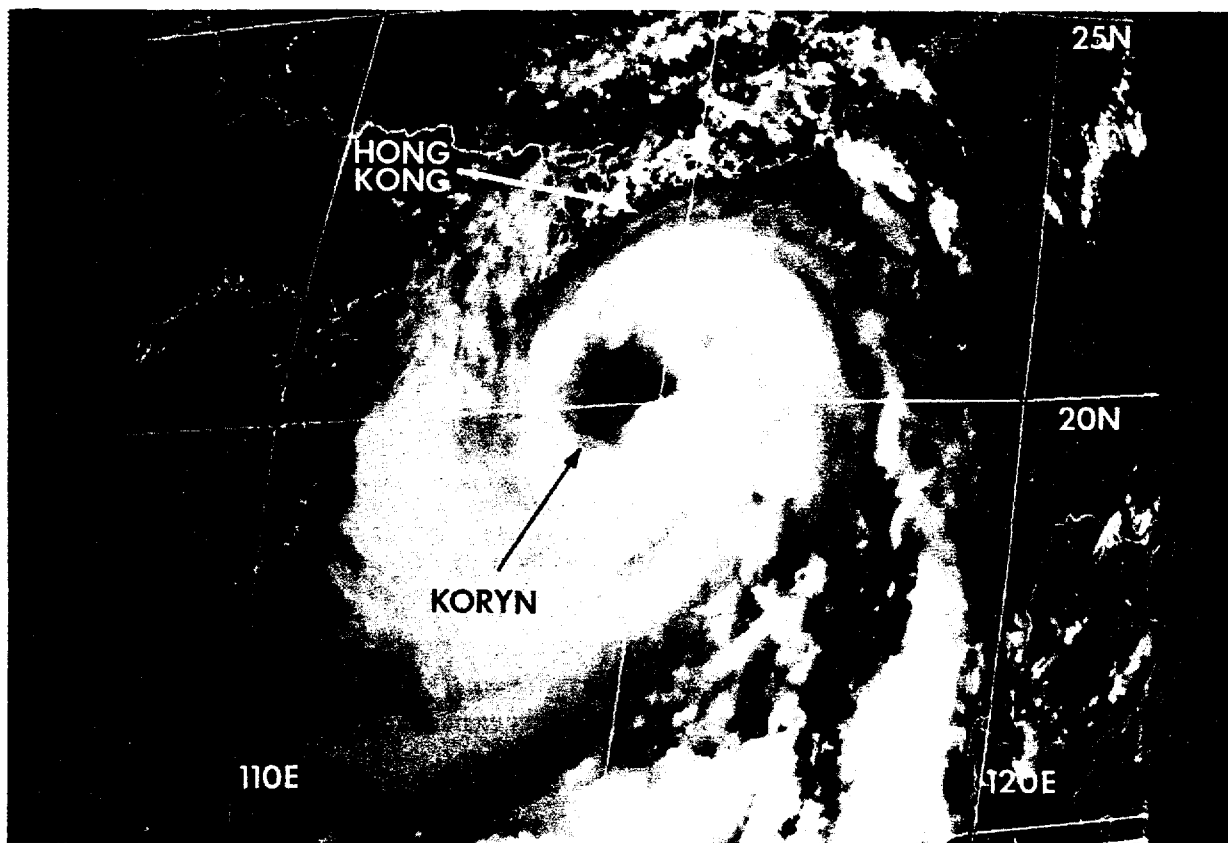


Figure 3-06-1 Koryn exhibits a large, ragged, cloud-free eye as it passes south of Hong Kong (262333Z June visual NOAA imagery).

I. HIGHLIGHTS

The first typhoon of the 1993 in western North Pacific, Koryn intensified slowly, taking over a week to attain minimal typhoon force winds. However, in 24 hours after its winds reached 65 kt (33 m/sec), the tropical cyclone rapidly doubled its intensity to become a super typhoon. After striking northern Luzon, Koryn entered the South China Sea and passed 90 nm (165 km) to the southeast of Hong Kong. Hong Kong experienced wind gusts to 92 kt (47 m/sec) and torrential rains (Figure 3-06-1).

II. CHRONOLOGY OF EVENTS

June

131800Z - The disturbance was first mentioned in the Significant Tropical Weather Advisory as an area of persistent convection located in the near equatorial trough in the eastern Caroline Islands.

151800Z - The first warning was issued based on a 25 kt (13 m/sec) northwesterly wind at Nukuoro Atoll (WMO 91425) and a satellite intensity estimate of 25 kt (13 m/sec).

170000Z - Based on a satellite intensity estimate of 35 kt (18 m/sec), Koryn was upgraded to a tropical storm.

230000Z - The appearance of a small 10 nm (19 km) diameter eye and the resulting satellite intensity estimate of 65 kt (33 m/sec) prompted an upgrade of Koryn to a typhoon.

240600Z - Based on a satellite Dvorak intensity estimate of 127 kt (65 m/sec), Koryn was upgraded to a super typhoon.

280600Z - The final warning was issued on Koryn as it rapidly dissipated over the mountains of northern Vietnam.

III. IMPACT

The passage of Koryn over Ulithi (WMO 91203) gave the island 5.53 in (140 mm) of rain and 60 kt (31 m/sec) winds. While there were no deaths or injuries reported, there was extensive damage to crops and vegetation as well as some roof damage to structures. In the Philippines on the island of Luzon, floods and landslides caused by Koryn's torrential rains left at least 28 people dead. Damage to crops, infrastructure, homes, and livestock was estimated to be over (US)\$14.5 million.

In Hong Kong, at least 183 people were injured, and a freighter, the 12,522-ton Lian Gang, sank 65 nm (120 km) southeast of Hong Kong with the loss of four of the crew. Koryn also lashed the coast of southern China's Guangdong Province, killing at least five people. No reports were received from Vietnam.

IV. DISCUSSION

The disturbance, that was to become Super Typhoon Koryn, first appeared at very low latitude (4°N) in the eastern Caroline Islands (near 160°E). From this birthplace, the disturbance moved northward, and then, upon attaining minimal tropical storm intensity, it made a 90-degree turn to the west. Initial northward motion, with a later turn to the west, has been observed with tropical cyclones that form at very low latitude in a near-equatorial trough, and, although a physical understanding of why or how the event takes place is little understood, the operational forecaster needs to anticipate its occurrence.

In the process of becoming a super typhoon, Koryn went through a period of rapid intensification for a period of 36 hours (221800Z to 240600Z). The 66-mb fall of the central pressure over these 36 hours represents an average pressure fall of 1.83 mb/hr which exceeds the 1.75 mb per hour criteria established for rapid intensification by Holliday and Thompson (1979).

While crossing northern Luzon, Koryn's weakened 20 kt (10 m/sec) — from 110 kt (57 m/sec) to 90 kt (46 m/sec) — which is well below the expected 45 kt (23 m/sec) as discussed in Shoemaker (1991) and Williams et al (1993) (S&W). This may be due to Koryn's rapid forward motion of 15 kt (28 km/hr): the faster the forward motion the less the weakening — a factor found by S&W.